

What is claimed is:

1. A method of guiding an optical beam progressing along an axis of transmission defined by an optical converter, such method comprising the steps of:

disposing an optically transparent substrate in the axis of transmission of the optical converter with a predominant plane of the substrate disposed perpendicular to the axis of transmission and so that the optical beam passes directly through the substrate; and

disposing a plurality of refracting or reflecting elements around the axis of transmission within a body of the optically transparent substrate.

2. The method of guiding the optical beam as in claim 1 further comprising defining the optically transparent substrate as a mounting substrate.

3. The method of guiding the optical beam as in claim 1 further comprising defining the optically transparent substrate as an auxiliary substrate.

4. The method of guiding the optical beam as in claim 3 further comprising mounting the optical converter to a mounting substrate so that the axis of transmission passes directly through the mounting substrate.

5. The method of guiding the optical beam as in claim 4 further comprising juxtaposing the mounting substrate with the auxiliary substrate.
6. The method of guiding the optical beam as in claim 1 further comprising defining the plurality of refracting or reflecting elements as apertures within the optically transparent substrate.
7. The method of guiding the optical beam as in claim 6 further comprising filling the plurality of apertures with a material with a lower index of refraction than the optically transparent substrate.
8. The method of guiding the optical beam as in claim 1 further comprising disposing the plurality of refractive or reflective elements in a circle around the axis of transmission defined by the optical converter.
9. The method of guiding the optical beam as in claim 1 further comprising disposing the plurality of refracting or reflective elements in a square around the axis of transmission defined by the optical converter.
10. The method of guiding the optical beam as in claim 1 further comprising disposing the plurality of refractive or reflective elements in a octagon around the axis of transmission defined by the optical converter.

11. The method of guiding the optical beam as in claim 1 further comprising disposing the plurality of refractive or reflective elements in a random array around the axis of transmission defined by the optical converter.

12. An apparatus for guiding an optical beam progressing along an axis of transmission defined by an optical converter, such apparatus comprising:

an optically transparent substrate disposed in the axis of transmission of the optical converter with a predominant plane of the substrate disposed perpendicular to the axis of transmission and so that the optical beam passes directly through the substrate; and

a plurality of refracting or reflecting elements adapted to reflect the optical beam disposed around the axis of transmission within a body of the optically transparent substrate.

13. The apparatus for guiding the optical beam as in claim 12 further comprising defining the optically transparent substrate as a mounting substrate.

15. The apparatus for guiding the optical beam as in claim 12 further comprising defining the optically transparent substrate as an auxiliary substrate.

16. The apparatus for guiding the optical beam as in claim 15 further comprising the optical converter mounted to a mounting substrate so that the axis of transmission passes directly through the mounting substrate.

17. The apparatus for guiding the optical beam as in claim 16 further comprising the mounting substrate juxtaposed with the auxiliary substrate.
18. The apparatus for guiding the optical beam as in claim 12 further comprising defining the plurality of refracting or reflecting elements as apertures within the optically transparent substrate.
19. The apparatus for guiding the optical beam as in claim 18 further comprising the plurality of apertures filled with a material with a lower index of refraction than the optically transparent substrate.
20. The apparatus for guiding the optical beam as in claim 18 further comprising the plurality of apertures filled with a reflective material.
21. The apparatus for guiding the optical beam as in claim 12 further comprising the plurality of refracting or reflective elements disposed in a circle around the axis of transmission defined by the optical converter.
22. The apparatus for guiding the optical beam as in claim 12 further comprising the plurality of refractive or reflective elements disposing in a square around the axis of transmission defined by the optical converter.

23. The apparatus for guiding the optical beam as in claim 12 further comprising the plurality of refractive or reflective elements disposing in a octagon around the axis of transmission defined by the optical converter.

24. The apparatus for guiding the optical beam as in claim 12 further comprising the plurality of refractive or reflective elements disposing in a random array around the axis of transmission defined by the optical converter.

25. A method for guiding an optical signal within an electro-optic signal processing assembly, such method comprising the steps of:

providing a first and second optically transparent substrate with a plurality of alignment apertures formed in the substrates;

providing an optical device with a transmission path of the optical device passing directly through the bodies of the two optically transparent substrates,

providing an optical via for shaping the transmission path of the optical signal, said optical via comprising a plurality of apertures formed in the second substrate, such that the transmission path of the optical device passes directly through the body of the substrate defined by the area encompassed by the plurality of apertures;

aligning an optical fiber holder to the optical device using a plurality of guide pin apertures in the substrate and a respective plurality of guide pins and;

coupling an optical signal of the optical device of the optical array to a respective optical fiber of the aligned optical fiber holder.

26. A method for providing an electro-optic signal processing assembly, such method comprising the steps of:

providing an optically transparent substrate with a plurality of apertures formed in the substrate;

providing an optical device with a transmission path of the optical device passing directly through a portion of the body of the optically transparent substrate defined by the area encompassed by the plurality of apertures;

aligning an optical fiber holder to the optical device using a plurality of guide pin apertures in the substrate and a respective plurality of guide pins and;

coupling an optical signal of the optical device of the optical array to a respective optical fiber of the aligned optical fiber holder.

27. An electro-optic signal processing device, such package comprising:

a first and second optically transparent substrate with a plurality of alignment apertures formed in the substrates;

an optical device having a transmission path of the optical device passing directly through the bodies of the two optically transparent substrates,

an optical via comprising a plurality of apertures formed in the second substrate, such that the transmission path of the optical device passes directly through the body of the substrate defined by the area encompassed by the plurality of apertures;

means for holding an optical fiber and for guiding the optical device into alignment with a respective optical fiber using a plurality of guide pins and alignment apertures disposed in the substrate.

28. An electro-optic signal processing device, such package comprising:
  - an optically transparent substrate having apertures formed in the substrate, where the apertures form an optical via
  - an optical device having a transmission path that passes directly through a portion of the body of the optically transparent substrate defined by the optical via, and
  - means for holding an optical fiber and for guiding the optical device into alignment with a respective optical fiber using a plurality of guide pins and alignment apertures disposed in the substrate.